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Mullineux, J., Taylor, B., & Giles, M. (2019). Professional Judgement about Reoffending: Factorial survey. *Journal of Social Work*, 20(6), 797-816. <https://doi.org/10.1177/1468017319848889>

[Link to publication record in Ulster University Research Portal](#)

Published in:
Journal of Social Work

Publication Status:
Published online: 13/05/2019

DOI:
[10.1177/1468017319848889](https://doi.org/10.1177/1468017319848889)

Document Version
Author Accepted version

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Professional judgement about reoffending: factorial survey

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CITE AS: Mullineux JM, Taylor BJ & Giles M (2020) Professional judgement about reoffending: factorial survey. *Journal of Social Work*, 20(6), 797-816. <https://doi.org/10.1177/1468017319848889> [published online 14 May 2019; issue 01 November 2020]

Abstract

Summary: Social workers in criminal justice provide reports to courts, including assessments of the likelihood of reoffending, which are used to assist in judicial decisions. This study used a factorial survey with 93 social workers employed as Probation Officers to measure factors influencing their judgement of the risk of reoffending.

Findings: Analysis using regression and ANOVA showed that judgements about the likelihood of reoffending were influenced by dynamic factors (such as substance misuse, support networks, level of responsibility taken for offending behaviour and cooperation with probation supervision) as well as more widely-tested static risk factors (such as previous convictions and age).

Application: This study highlights a range of dynamic factors that might inform review of criminal justice social work assessment tools which typically incorporate the better-tested static factors. The findings will contribute to current thinking in social work education which is starting to address issues of risk and decision making more explicitly in the curriculum at both qualifying and post-qualifying stages. The more nuanced assessment of factors considered by experienced criminal justice social workers will complement the evidence from more strongly-evidenced static risk factors to inform teaching about professional judgements. As we seek to incorporate statistical knowledge into the human processes of social work assessment, Brunskwik's Lens Model and other psycho-social rationality models – which bridge between analytic and descriptive models of human judgement - may be useful conceptualisations of the professional judgement process in social work.

Keywords

Criminal justice; decision making; professional judgement; psycho-social rationality; risk; social work.

Context

Social workers in criminal justice undertake a wide range of tasks to 'advise, assist and befriend' (Probation of Offenders Act, 1907) those convicted of crimes, to support them in avoiding re-offending in future, and to support victims and families of offenders. Increasingly the role has been influenced by broader societal concern to 'manage risk' (focusing particularly on harm to other citizens) and to ensure optimal value for money (focusing on 'what works' in preventing crime). This article focuses on the confluence of these two concerns in contemporary practice: social workers in criminal justice undertaking assessment of the likelihood of re-offending in their reports to assist courts in their decision making. These dimensions of professional practice create tensions for professionals, and this research explored this professional judgement process with a view to informing practice.

The development of assessment of reoffending in criminal justice social work

As part of the legacy of the 'what works' debates, there has been increased interest in the development of assessment tools in order to facilitate more accurate judgements regarding offending behaviour (Martinson, 1974; Cullen & Gendreau, 1989; Andrews & Bonta, 1994; Bonta, 1996; Merrington, 2004; Schwalbe, 2007; Wilcox, Beech, Markall & Blacker, 2009) although there has been less attention to

understanding how evidence (knowledge) is incorporated into practice (Taylor & Killick, 2013; Taylor, Killick & McGlade, 2015a). The assessment of risk has become prolific activity (Helmus & Babchishin, 2017) in the criminal justice system. More broadly, issues of risk assessment and risk management have become critical in all areas of social work practice (Taylor, B.J., 2006a; Taylor & Campbell, 2011; Whittaker & Havard, 2016). Many areas of social work share the same objective of identifying 'high-risk' cases through assessment and managing these to reduce potential risk (Carson & Bain, 2008; Fengler & Taylor, in press).

However, questions remain as to whom to target for deterrence, for incarceration and for rehabilitation with issues of cost and public safety as conflicting demands. Increasingly, these decisions are based on outcomes of actuarial measures, which have developed as a result of applying research findings on risk factors to procedural tools that can be readily utilised in a daily context. The factors included in these tools are those that have demonstrated an empirical link to the area being assessed (criminogenic). These may be static factors (those that remain fixed over time, such as criminal history and having criminal-biological parents) or dynamic factors (those that are subject to change, such as attitudes and employment) (Andrews & Bonta, 1994). A key issue is that, regardless of the assessment tool used to structure and guide information gathering, the criminal justice social worker must come to a judgement as to whether he or she thinks that this individual is likely to reoffend, and make a recommendation based on that judgement.

Models of professional judgement for understanding criminal justice social work

There are various models that can be used to conceptualise the professional judgement task of social workers. Models of human judgement can be conceived as on a continuum with the more analytic models at one end of the spectrum and the more descriptive models at the other (Taylor, 2012). The 'analytic' approaches focus primarily on modelling how a rational person ought to make a decision, adapting this through research to accommodate what happens in practice (Taylor, 2012). In contrast, 'descriptive' approaches begin from the study of how people make decisions in the real world. They then work to create a model that makes sense of this behaviour. This continuum will be illustrated with brief descriptions of a model at each end of the spectrum – *Expected Utility* and *Narrative Explanation* models – as a context for the *Psycho-Social Rationality* models (in the middle ground) within which this study is located.

The *Expected Utility* model is based on principles of probability developed by Daniel Bernoulli (1954 [1738]) who considered the price a person should be prepared to pay to enter into a gamble. Bernoulli concluded that individuals place subjective values, or 'utilities', on monetary outcomes. The term 'utility' refers to the desirability or value of the outcome of a decision. 'Desirability' is, however, subjective as it is dependent on the individual's values at the time. *Expected Utility* can be calculated mathematically as value placed on the outcome multiplied by the likelihood of occurrence. Within this model it is a premise that the person making the decision will carry out calculations and opt for the decision with the highest expected utility (Edwards, 1992). On an expected utility model, the social worker would give weightings to the factors in accordance with their measured 'utility', i.e. the best evidence of the measured risk factors in terms of their usefulness in predicting reoffending. This model underpins the initiatives to develop actuarial-based assessment tools in professional practice.

At the opposite end of the spectrum is the Narrative Explanation model (Taylor, 2012). The time-honoured probation officer's *Pre-sentence Report*, or the social worker's *Social Enquiry Report* might be viewed as examples of a Narrative Explanation model of human judgement. The various facts known about the situation are woven together into a narrative that 'makes sense' to the person making the judgement. Illogical explanations are ruled out, and the most plausible chain of events is teased out as a causal sequence. Such models provide an opportunity to use professional knowledge to inform the understanding of individual recidivism, family dynamics or group processes. In this way the prognosis or prediction about reoffending would be based on a coherent narrative involving facts (as perceived)

and a knowledge base that makes sense to the person making the judgement. A key issue is how the professional understands such aspects as motivation, trust, peer pressure and other social concepts that are used to understand human behaviour.

The third group of approaches to modelling individual judgement discussed here is termed *Psycho-Social Rationality* (Taylor, 2017a; Taylor, 2017b). Between the two poles of purely analytic (statistical) and purely descriptive (narrative or intuitive) models, we envisage a domain of understanding individual judgement processes that involves some 'rational' consideration of predictive factors, but in a cognitive 'manipulation' better suited to the human brain than a statistical regression analysis computing risk factors. This domain of 'psycho-social rationality' draws on the heuristics and biases tradition of the study of decision making, in particular the more recent understandings of heuristics as useful shortcuts by contrast with the earlier emphasis on shortcuts as biases when compared to expected utility predictions. Gilvovich, Griffin and Kahnman (2002) argue that "judgement under uncertainty often rests on a limited number of simplifying heuristics rather than extensive algorithmic processing" (p.1). The key argument is that humans use cognitive heuristics to reduce the complexity of making probabilistic judgements. The purpose of this is evolutionary in that it serves a survival function as, on occasion, it is important to act quickly.

Brunswik's Lens Model (Brunswik, 1952) may be considered as an example of a *psycho-social rationality* model. This model (normally considered within the framework of *social judgement analysis*; Cooksey, 1996) considers the person making the judgement as viewing the factors in their environment through the 'lens' of their internalised knowledge and values. The weighting given to factors in the decision environment depends on their mental framework and prior knowledge as well as on the presenting factors themselves. These psycho-rationality models highlight the complexity of professional judgement processes, and it is that which is of particular interest for this study. The factorial survey is a research design that is well-suited to studying decision making conceived in terms of Brunswik's Lens Model and other psycho-social rationality models.

Methodology

Rossi and Nock (1982) developed the factorial survey to answer questions such as: 'what information is used in making judgments?' and 'how are relevant factors combined in making judgements?' Factorial surveys involve the presentation of realistic case studies (vignettes) where the factors of interest within the vignettes are randomly varied (Taylor, 2006a). The factors underlying the vignettes are therefore orthogonal (ie. not collinear) and the randomisation provides high internal validity (Auspurg & Hinz, 2014; Taylor & Zeller, 2007). The purpose is to measure the effect size of key factors on an individual's judgement (Ludwick & Zeller, 2001; Rossi & Anderson, 1982; Wallander & Molander, 2014, 2016). The method is appropriate to study factors which are being weighed up in making cognitive judgements.

The aim of this study was to explore the professional judgement processes of probation officers regarding the likelihood of re-offending. The objective was to identify *the complexity* of factors involved in that judgement and to *measure the effect* of selected factors on probation officers' judgements. There is an extensive literature on static and dynamic factors predictive of re-offending and for this study the case factors were drawn from both an in-depth literature review and a preliminary repertory grid study (Giles & Mullineux, 2010; Mullineux, Taylor & Giles, 2018). The Repertory Grid (Kelly, 1955) was a structured qualitative study that provided a greater understanding of the concepts and daily terminology used by probation officers on this topic, as well as contributing to the selection of factors for study.

Design

A factorial survey approach was used to study case factors incorporated into realistic vignettes, presented through a questionnaire, and sent to probation officers across Northern Ireland. Demographic information was also gathered: age, gender, length of time since qualifying in social work, professional

role and length of time employed as a probation officer. This study was granted ethical approval by the Probation Board Northern Ireland (PBNi) and a research governance committee of Ulster University.

The following schema was used to select risk factors (independent variables) for the study.

1. A well-established *static* factor to test the method and develop the existing knowledge base e.g. offending history.
2. A well-established *dynamic* factor e.g. substance misuse.
3. Factors derived from the literature and repertory grid study, including:
 1. desistance (derived from the employer's review of practice standards);
 2. interpersonal (including values and beliefs); and
 3. childhood history (including adverse childhood experiences).

Table 1: *Independent Variables*

Independent variable (IV)	Realisations/Levels	Number of levels
Age	18, 25, 35, 45 years.	4
Maturity	Immaturity, Maturity.	2
Previous convictions	0, 1, 3, 10, >20.	5
Substance misuse	No substance misuse, Some substance misuse, Substance dependency.	3
Support networks	No support networks, Limited support networks, Some non-criminal support networks, Extensive pro-social networks.	4
Religiosity	No religious beliefs, Religious beliefs but does not belong to a faith based organisation, Religious beliefs and regularly attends a faith based organisation.	3
Demeanour	Consistent and gentle demeanour, Consistent and confident demeanour, Volatile & unpredictable demeanour.	3
Responsibility	Fully accepts responsibility, Partly accepts responsibility, Accepts no responsibility.	3
Cooperation	Cooperative, Responsive, Superficially cooperative, Uncooperative.	4
History	Multiple adverse childhood experiences, Some adverse childhood experiences, Stable family upbringing.	3
Intellectual ability	Capable, Limited, Diagnosed with a learning disability.	3
Worker understanding of rationale for behaviour	Difficult to understand, Possible to understand, Easy to understand.	3

The factors chosen were allocated a 'domain' and 'realisations' (levels) in accordance with Rossi and Nock's (1982) vignette construction procedure (see Table 1). The Excel facility for generating random numbers was used to identify which factors would go into each vignette within each respondent's questionnaire. A command was entered in to the programme to ensure that illogical factors did not appear together, for example, 'cooperative' and 'volatile and unpredictable demeanour'. The Mail Merge facility was then used to directly import the random set of vignettes (each with random variables) into each questionnaire. The vignette framework is presented in Table 2.

Three standardised vignettes were designed based on cases considered to be ‘typically’ high, ‘typically’ medium and ‘typically’ low regarding recidivism, based on a preliminary Repertory Grid study (Mullineux, Taylor & Giles, 2018) with Probation Officers. These three vignettes were presented to all respondents in the order of high, low and medium. The standardised vignettes provided a baseline measure. The twelve unique vignettes were then randomly created. One factor had two levels; another had five levels; seven had three levels; and three had four levels. The number of possible vignettes was therefore: $2^1 \times 3^7 \times 4^3 \times 5^1 = 1,399,680$ possible unique vignettes.

Table 2: *Vignette framework*

-
1. Your client is **[18, 25, 35, 45]** years of age.
 2. He usually displays a level of **[immaturity, maturity]**.
 3. Your client has **[no, 1, 3, 10, more than 20]** previous convictions.
 4. He reports **[no substance misuse, some substance misuse, a substance dependency]**.
 5. He has **[no support networks, limited support networks, some non-criminal support networks, extensive pro-social networks]**.
 6. He has **[no religious beliefs, religious beliefs but does not belong to a faith based organisation, religious beliefs and regularly attends a faith based organisation]**.
 7. He usually presents with a **[consistent and gentle demeanour, consistent and confident demeanour, volatile and unpredictable demeanour]**.
 8. He **[fully accepts responsibility, partly accepts responsibility, accepts no responsibility]** for his offending behaviour.
 9. He is **[cooperative, responsive, superficially cooperative, uncooperative]** to probation supervision.
 10. He has a history of **[multiple adverse childhood experiences, some adverse childhood experiences, a stable family upbringing]**.
 11. Intellectually he is **[capable, limited, diagnosed with a learning disability]**.
 12. It is **[difficult to understand, possible to understand, easy to understand]** the rationale for his behaviour.
-

Participants

The factorial survey was administered to all Probation Officers working in a particular jurisdiction within the UK. All the Probations Officers are required to be professionally qualified social workers.

Procedure

A randomised sample of vignettes was emailed via the agency’s intranet to 221 potential respondents using the online survey tool ‘SurveyMonkey’TM. Each respondent was asked to complete 12 randomly-created vignettes noting their responses on a 7-point Likert scale. The following instructions were provided:

The following section contains a number of case studies. Please consider each scenario independently and complete the four questions that follow. When presenting ‘case study’ material it is often difficult to fully mirror the ‘real-world’ environment. In criminal justice this is particularly apparent due to the complex nature of the decision-making processes that are being undertaken. For example, it is not possible for us to provide criminal records, victim statements or minutes from multi-disciplinary panels which may be influential in your decision-making processes. In light of this we would ask that in all the case studies provided you assume that there is no additional information

that would significantly impact on the case. Also, please assume that the offence you are considering in relation to each case is a 'mid-range' offence that could typically be committed by a male or female client.

- *What do you think is the likelihood that this client will re-offend in the next two years?*
- *How confident are you with this judgement?*
- *How confident are you that probation supervision would be effective in this case?*

Seven-point scales were used to measure the respondents' perception of likelihood of reoffending (1 = no reoffending to 7 = certain to reoffend) for each question.

Method of analysis

A factorial survey measures the size of the effect of the variables in the vignettes (independent/predictor variables) on the judgement of the responding social workers (dependant/outcome variables). Multiple regression was used to examine the relationship between the factors (independent variables) and the judgement (dependent variable). This study involved vignettes with 12 factors linked to offending behaviour. The independent variables were re-coded as necessary using 'dummy variables', a single category of each variable being identified and omitted from the analysis, thereby serving as a 'reference group'. The analysis presents standardised β coefficients which measure the contribution that each factor makes to the particular judgement. A large β value indicates that that the factor has a large effect on the judgement. The effect size of each factor is measured using t values and the statistical significance of this effect was measured with p values. SPSS was used for data management.

Results

Ninety-three probation officers, 28 male and 65 female, completed questionnaires. This represented 43% of the total estimated target population of 221 Probation Officers, all professionally-qualified social workers. Their number of years since qualifying ranged from 6 months to 35 years, with the length of service within the probation service ranging from 6 months to 32 years. In total 1,116 vignettes were completed and used as the unit of analysis for the factorial survey with three dependent variables (questions) per vignette. We report findings in relation to the judgements about likelihood of reoffending and confidence in that judgement

The likelihood of re-offending

In order to determine which factors were considered to predict the likelihood of reoffending within the next two years regression analysis was undertaken. The model was significant in predicting the likelihood of re-offending within two years [$R^2 = .368$; $R_{adj} = .352$; $F(28,1107) = 22.990$; $p < .001$] explaining 35.2% of the variance. Regression coefficients, presented in Table 3, illustrate that eight of the 12 independent variables were significant: 'Age'; 'Previous convictions'; 'Substance misuse'; 'Support networks'; 'Demeanour'; 'Responsibility'; 'Co-operation'; 'Intellectual ability'.

Table 3: *Regression Coefficients: The Likelihood of Re-offending*

Field	Variable	B	SE	β	t
Age	18 (Reference group/RG)				
	25	-.306	.096	-.093	-3.180**
	35	-.471	.096	-.144	-4.926***
	45	-.550	.098	-.163	-5.610***
Maturity	Immaturity (RG)				
	Maturity	-.087	.076	-.030	-1.144
Previous Convictions	None (RG)				
	One	.277	.106	.079	2.621**

	Three	.802	.109	.217	7.335***
	Ten	1.356	.109	.369	12.401***
	More than 20	1.819	.105	.519	17.246***
Substance Misuse	No substance misuse (RG)				
	Some substance misuse	.161	.084	.053	1.924
	Substance dependency	.464	.084	.152	5.502***
Support Networks	No support networks (RG)				
	Limited support networks	-.087	.099	-.026	-.880
	Some non-criminal networks	-.048	.097	-.015	-.501
	Extensive pro-social networks	-.286	.097	-.088	-2.950**
Religious Beliefs	No religious beliefs (RG)				
	Religious beliefs but does not belong to organisation	.070	.086	.023	.815
	Religious beliefs and regularly attends organisation	-.132	.082	-.044	-1.606
Demeanour	Consistent gentle demeanour (RG)				
	Consistent confident demeanour	.007	.080	.002	.088
	Volatile unpredictable demeanour	.463	.091	.143	5.094***
Responsibility	Fully accepts responsibility (RG)				
	Partly accepts responsibility	.246	.085	.080	2.900**
	Accepts no responsibility	.588	.083	.195	7.054***
Cooperation	Cooperative (RG)				
	Responsive	-.046	.107	-.014	-.425
	Superficially cooperative	.341	.108	.106	3.158**
	Uncooperative	.485	.108	.152	4.484***
History	Adverse childhood experiences	.132	.084	.044	1.577
	Family dysfunction	.150	.085	.049	1.764
	Childhood stability (RG)				
Intellect	Capable (RG)				
	Limited	.173	.076	.060	2.274*
	Diagnosed with a learning disability	.224	.107	.060	2.102*
Rationale	Possible to understand	-.087	.085	-.029	-1.018
	Difficult to understand (RG)				
	Easy to understand	-.060	.084	-.020	-.719

*p<.05. **p < .01. ***p<.001

As illustrated in Table 3, the likelihood of reoffending was regressed on eight independent variables. Regression coefficients indicated that the variables, 'Level of maturity', 'Childhood history', 'Religious beliefs' and 'Rationale' were not significant in terms of assessing likelihood of re-offending within two years. The most influential variable was number of 'Previous Convictions' which contained 5 categorical levels. The category 'No previous convictions' was used as the reference group and the remaining 4 groups all indicated a significant difference, the most significant category being 'more than 20' previous convictions ($B=1.819$, $\beta=.519$, $p<.001$). The remaining 'previous convictions' categories were all significant with the level of impact reducing slightly as the number of previous convictions declined: 'ten' previous convictions ($B=1.356$, $\beta=.369$, $p<.001$), 'three' ($B=.802$, $\beta=.217$, $p<.001$), 'one' ($B=.277$, $\beta=.079$, $p<.01$).

The second most influential variable was 'Age' which contained four categorical levels with '18' years serving as the reference group. The most influential category was where the offender was aged '45'

years ($B=-.550$, $\beta=-.163$, $p<.001$). Again, the level of impact reduced in-line with age: '35' years ($B=-.471$, $\beta=-.144$, $p<.001$) and '25' years ($B=-.306$, $\beta=-.093$, $p<.005$).

The variable 'Responsibility', where the client was considered in terms of the level of responsibility taken for their offending behaviour, was the next most influential variable. There were three categorical levels in this variable with 'Fully accepts responsibility' serving as the reference group. All the categories were significant with the highest impact coming from the category 'Accepts no responsibility' ($B=.588$, $\beta=.195$, $p<.001$) followed by 'Partly accepts responsibility' ($B=.246$, $\beta=.080$, $p<.005$).

As illustrated in Table 3, the fourth most influential variable was 'Cooperation' with regard to probation supervision. There were four categorical levels within this variable with 'Cooperative' acting as the reference group. The categories impacting most on likelihood of re-offending were where the client was deemed to be 'Uncooperative' ($B=.485$, $\beta=.152$, $p<.001$) or 'Superficially cooperative' ($B=.341$, $\beta=.106$, $p<.005$).

The variable 'Substance misuse' was fifth in terms of influence. This factor had three categorical variables with 'No substance misuse' as the reference group. Only 'Substance dependency' showed a significant impact ($B=.464$, $\beta=.152$, $p<.001$).

The sixth most influential variable category 'Demeanour' contained three categorical levels where 'Consistent, gentle demeanour' served as the reference group. Where the client presented with a 'Volatile unpredictable demeanour' this was most likely to influence probation officers' decisions regarding the likelihood of re-offending ($B=.463$, $\beta=.143$, $p<.001$).

This was followed by 'Support networks' which had four categorical levels with 'No support networks' as the reference group. Only 'Extensive support networks' showed a significant impact ($B=-.286$, $\beta=-.088$, $p<.005$).

The final variable, 'Intellect', was also influential. All values of the variable 'Intellect' significantly influenced Probation officers' assessment of likelihood of re-offending where 'capable' served as the reference group. The categorical level 'Limited' showed the most impact ($B=.173$, $\beta=.060$, $p<.05$) followed by 'Diagnosed with a learning disability' ($B=.224$, $\beta=.060$, $p<.05$).

A second regression analysis was completed looking at the second dependent variable 'How confident are you with this judgement?' The model was significant in predicting judgement confidence [$R^2 = .066$; $\text{Radj} = .042$; $F(28,1107) = 2.774$; $p<.001$] explaining 4.2% of the variance. As illustrated in Table 4, the regression coefficients show only two of the 12 independent variables as significant in influencing decisional confidence: 'Age' and 'Previous convictions'.

Table 4: *Regression coefficients: Confidence in Judgement*

Field	Variable	B	SE	β	t
Age	18 (Reference group/RG)				
	25	-.079	.089	-.031	-.879
	35	-.148	.089	-.059	-1.663
	45	-.202	.091	-.079	-2.220
Maturity	Immaturity (RG)				
	Maturity	.081	.070	.036	1.145
Previous Convictions	None (RG)				
	One	-.037	.098	-.014	-.382
	Three	-.082	.102	-.029	-.806
	Ten	.167	.102	.059	1.641

	More than 20	.462	.098	.173	4.721***
Substance Misuse	No substance misuse (RG)				
	Some substance misuse	-.045	.078	-.020	-.581
	Substance dependency	.142	.078	.061	1.811
Support Networks	No support networks (RG)				
	Limited support networks	.069	.092	.027	.751
	Some non-criminal networks	-.150	.090	-.060	-1.672
	Extensive pro-social networks	-.052	.090	-.021	-.583
Religious Beliefs	No religious beliefs (RG)				
	Religious beliefs but does not belong to organisation	.058	.080	.024	.724
	Religious beliefs and regularly attends organisation	-.070	.077	-.031	-.910
Demeanour	Consistent gentle demeanour (RG)				
	Consistent confident demeanour	-.004	.074	-.002	-.060
	Volatile unpredictable demeanour	.142	.084	.057	1.685
	Fully accepts responsibility (RG)				
Responsibility	Partly accepts responsibility	-.013	.079	.006	-.171
	Accepts no responsibility	.127	.077	.055	1.645
Cooperation	Cooperative (RG)				
	Responsive	-.052	.099	-.021	-.518
	Superficially cooperative	.072	.080	.027	.889
	Uncooperative	.042	.100	.017	.417
History	Adverse childhood experiences	.005	.078	.002	.066
	Family dysfunction	.153	.079	.066	1.934
	Childhood stability (RG)				
Intellect	Capable (RG)				
	Limited	-.044	.071	-.020	-.625
	Diagnosed with a learning disability	.000	.099	.000	-.002
Rationale	Possible	.092	.079	.040	1.157
	Difficult (RG)				
	Easy	.114	.078	.050	1.469

***p<.001

The most influential variable in terms of probation officers' confidence with the judgement made in the previous analysis ('The likelihood that this client will re-offend in the next two years') was 'Number of previous convictions'. There were five categorical levels within this variable with 'No' previous convictions serving as the reference group. Only one category was significant and that was 'more than 20' previous convictions ($B=.462$, $\beta=.173$, $p<.001$). On closer examination of the β values, although not statistically significant, a similar pattern to the first regression analysis can be seen as the level of impact reduces as the number of previous convictions decline.

The other variable that was significant in relation to decisional confidence was 'Age'. There were four categorical levels within this variable where '18' years served as the reference group. Only the category '45' years was significant ($B=-.202$, $\beta=-.079$, $p=.027$). On closer examination of the β values, although not statistically significant, a similar pattern to the first regression analysis can be seen as the level of impact reduces as the age of the offender reduces.

Discussion

This study contributes a more nuanced understanding of professional social work judgements about re-offending than the current knowledge base built on actuarially-defined risk factors. As the profession continues to progress in the age of 'big data' it will become increasingly important that we find optimal

ways to incorporate statistical knowledge into professional judgement. This study assists our understanding of the way that social workers in criminal justice weigh up various factors, both statistical and those that are more 'intuitive' or not measured.

This study highlights a range of dynamic factors that might inform a review of criminal justice assessment tools which typically incorporate the better-tested static factors. The findings will contribute to current thinking in social work education which is starting to address issues of risk and decision making more explicitly in the curriculum at both qualifying and post-qualifying stages. The more nuanced assessment of factors considered by experienced criminal justice social workers will complement the evidence from more strongly-evidenced static factors to inform teaching about professional judgments. As we seek to incorporate statistical knowledge into social work assessment, psycho-social rationality models – which may be considered as bridging between analytic and descriptive models of professional judgement – may be useful conceptualisations of the professional decision making process.

Influence of factors on professional judgement

Approximately 35% of the variance in the responses was explained by eight of the independent variables: age; previous convictions; substance misuse; support networks; demeanour; responsibility; co-operation; and intellectual ability. These include both factors that are measured in actuarial prediction tools – such as previous convictions (Farrington, 1989; Gendreau, Little & Goggin, 1996) and factors that are more intuitive and relationship-based – such as demeanour, responsibility and co-operation. The remaining variables: maturity; childhood history; religious beliefs; rationale, were not significant in terms of assessing likelihood of re-offending within two years. The lack of significance of childhood history is noteworthy given recent interest in trauma-based practice and adverse childhood experiences (McGavock & Spratt, 2014).

One of the most consistent research findings has been the correlation between age and offending behaviour and the results from this study indicate that probation officers appear to incorporate this knowledge into their assessment practice (Farrington, 1989; Patterson, DeBaryshe & Ramsay, 1989; Sampson & Laub, 1992, 1993; Moffitt, 1993; Laub & Sampson, 2003; Maruna, Immarigeon & Lebel, 2004; Van Der Put & Dekovic, 2011). It is interesting that whilst age was found to be significant in the model, level of maturity was not. Some may argue that these factors measure the same concept but the rationale for providing both was to tease out whether maturity actually overrides chronological age in an assessment context i.e. where an individual presents with a level of maturity and insight that is perhaps 'out of sync' with what their chronological age may suggest. In view of this one might have expected maturity, instead of age, to have been the significant factor.

The third significant variable was *responsibility*. This variable addresses the level of responsibility an individual takes for their offending behaviour. This was a common theme in the repertory grid and often appeared alongside the concept of 'internal vs. external locus of control'. The results indicated a significant difference between someone who accepts responsibility for their behaviour, either fully or partly, and someone who takes no responsibility. Those who accepted no responsibility were considered to be more likely to re-offend.

A lack of responsibility for behaviour has been identified as a significant cognitive deficit linked to re-offending behaviour (Raynor, Kynch, Roberts & Merrington, 2000). However, research by Weiner, Folkes, Amirkhan and Verette (1987) provides an interesting dimension to the concept of 'responsibility' as they explore 'excuse giving'. The basis of their research is attribution theory as they suggest that excuses and justifications for behaviour have an "impression management function" (p.316) which preserves the self-esteem of the individual. Their research also found that the manipulation of the perceptions of others could be seen as a continuum with internal personal issues at one end and external environmental issues at the other. Their argument is that "responsibility can be minimised by shifting from internal to external causality" (p.316) and that we use external factors to justify behaviour

and protect ourselves from both negative affective states and the wrath of others. To reduce these unpleasant feelings, lessen personal responsibility or reduce negative consequences, individuals may withhold the truth and substitute alternative explanations. Weiner et al. (1987) go on to distinguish between the concepts of control and intent stating that intent implies that an act was carried out with planning and foresight in the knowledge of potential consequences. In the context of recidivism assessment, 'responsibility' is an important concept as insight into behaviour and victim awareness are factors also under consideration.

The issue of *cooperation* was the next most significant factor influencing the assessment of recidivism. Cooperation was presented in relation to the inter-face with probation services. When the individual was deemed 'uncooperative' or 'superficially cooperative' they were perceived to be more likely to re-offend. Interestingly, however, there was no significant distinction being made between *co-operation* and *responsiveness* (cf. Bonta & Warmith, 2008). This may be an area that would warrant further qualitative research as these findings suggest that some assessment is taking place, perhaps intuitively, around genuineness of intent which introduces a moral dimension to the assessment.

The fifth significant variable in the model was *substance misuse*. There was a significant difference in the assessment of recidivism when the offender was considered to have a substance 'dependency'. Compared to someone who does not abuse substances the person with a dependency was perceived to be more likely to re-offend. There was no significant difference being made between a non-user and someone who uses occasionally. The key factor appears to be dependency and addiction.

Factors affecting confidence in own professional judgement

The second regression analysis identified the key assessment factors in relation to the dependent variable 'How confident are you with this judgement?' There were only two factors that contained significant realisations, number of previous convictions and age. The results suggested that probation officers only have confidence in their prediction of recidivism when these two factors are present. Probation officers were most confident when the offender had twenty or more *previous convictions* although confidence increased as the number of previous offences rose from three or more.

The second significant factor influencing probation officer confidence in the recidivism decision was the *age* of the offender. Confidence was again greatest at the extreme end of the scale i.e. they were more confident in their decision when the offender they were assessing was 45 years old compared to 18 years old. The results showed an incremental rise in confidence as the age of the offender increased. The results on the confidence measure were surprising. The findings from the analysis of the first dependent variable illustrated that eight of the factors were influential in probation officers' recidivism assessments. These factors were a mixture of static and dynamic factors. However, when asked how confident they were in their decision they relied heavily on static factors.

The results from the first regression analysis indicated that issues such as 'cooperation' and 'demeanour' are impacting on probation officers' judgements but when their level of confidence is explored they are only confident when presented with concrete, objective evidence. This suggests that whilst they may be utilising their personal belief systems, intuition and subjective clinical judgement in the formulation of their judgements they are not confident enough to base decisions on this information.

There is some support here for the 'expected utility' decision making model. This model suggests that the decision maker, in this instance the probation officer, will carry out some rough calculations exploring the value and desirability of the outcome and the likelihood of its occurrence. Hardman (2009) argues that in this context people tend to be risk-averse, considering the potential risks before the potential benefits. The results from this study appear to support this, as probation officers are most confident in their recidivism assessment when they base it on static rather than dynamic factors. This suggests that

concerns about giving the 'benefit of the doubt' to an individual, and the associated implications for public security and safety should the individual re-offend, filter through to practitioner judgements.

The psychosocial rationality decision making model (Taylor, 2017b) assists in illustrating and understanding the results from the study regarding probation officers' confidence in their decisions. A psycho-social rationality approach suggests that where difficulties arise in the 'weighing up' of possibilities, perhaps because they are very different concepts, for example, a large number of previous convictions vs. a high level of compliance, a heuristic 'fast and frugal' strategy is undertaken with one over-riding reason chosen to support the final decision. Perhaps the static factors, number of previous convictions or age, become the decision rule as they are easy to justify, supported by research evidence and minimise risk, all of which appear to enhance confidence in the final decision made. Indeed, a fast and frugal tree approach can be considered in terms of its ability to function in signal detection that is, in the present case, in detecting who will reoffend (Luan et al., 2013).

Limitations of the study

The factorial survey was an effective method in exploring probation officers' decision making. The method provided a model through which a variety of factors could be effectively measured. In order to ensure manageability for both the participant and the researcher, the number of vignettes and vignette factors needed to be restricted. Whilst this allows for greater exploration of the included factors it is inevitable that other variables are excluded from the analysis and ultimately from consideration in the context of the research literature. The focus of this study was on case factors that influence professional judgements, not factors within professionals, organisations or the wider context in which the judgement is made (Taylor, 2019). We did not explore gender differences regarding criminal behaviour.

The factorial survey research design embodies strengths of both experimental and survey methods. By comparison with the better-known factorial experiments, the randomisation of vignettes to respondents gives greater external validity as it enables the inclusion of a larger number of factors giving more realistic vignettes. In practice the number of vignettes and vignette factors needed to be restricted to a number that is a realistic cognitive load for respondents (Miller, 1956). Inevitable that other variables are excluded from the analysis and ultimately from consideration in the context of the research literature. Vignettes are sometimes criticised as lacking in real-life detail, although they have been found to be stronger than case files for studying professional judgement (Peabody et al., 2000). Although statisticians may criticise a response rate of 43%, a response rate of 30-40% is typical for surveys of busy professionals, and it is well above the 33% average reported by Nulty (2008). The regression models used were regarded as sufficiently robust for any lack of normality in the data. The models explained approximately 35% of the variance in responses, which is typical of factorial surveys (Killick & Taylor, 2012). Interestingly, this was despite the instruction at the start of the vignettes that respondents should assume that there is no additional information that would significantly impact on the case. The elimination of illogical pairings of factors would have introduced some collinearity, but this introduces minimal error by comparison with standard survey and experimental methods (Taylor & Zeller, 2007).

Additionally, the absence of some of these factors may fuel the argument that studies using vignettes do not represent real-life situations and therefore cannot be considered a reliable method through which to measure professional decision making. When additional dimensions are considered, such as time scale, caseload size, conflicting priorities and/or stress, all of which are present in daily practice scenarios, this argument can be seen to gain strength. Additionally, it could be argued that the individual decisions noted through vignette responses are not representative of practice as many decisions are made collectively in consultation with line managers and/or multi-disciplinary panels.

Conclusion

The research question asked was 'How do probation officers' judge the likelihood of re-offending?'. The results indicate that a range of factors are considered in the assessment of recidivism incorporating both criminogenic and non-criminogenic factors as defined through the 'what works' literature. In this study probation officers considered the number of previous convictions and age to be most significant in the assessment of recidivism. Dynamic factors were considered to be most significant when considering the effectiveness of supervision and it may be that the introduction of a two-stage model of assessment is the most appropriate future development separating out the twin goals of rehabilitation and prediction. In the future the profession should perhaps consider a clearer separation of assessment purposes: those required to assess recidivism and those required to inform case risk management and goals of rehabilitation.

The knowledge developed through this study will contribute to existing material exploring decision making, not only in a criminal justice context, but also in other areas of social work practice. The study illustrates the complexity of decision making in criminal justice and, in particular, the tension between managing risk to society and building the social capital that will reduce re-offending (Farrall, 2002).

The results of this study will inform education and training for criminal justice practitioners and result in improved practice judgments. The study has provided a useful illustration of the value of a psycho-social rationality model of professional judgement, embodying elements of both statistical knowledge and 'explanatory' judgement processes. This will be useful for future studies in on professional judgement in social work.

Ethics

This study was granted ethical approval by the Probation Board Northern Ireland (PBNI) and the Ulster University School of Sociology and Applied Social Studies Research Governance Filter Committee.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: The research was completed as part of a doctoral study financially supported by the Ulster University.

Acknowledgements

The authors would like to thank the Probation Board for Northern Ireland for their support in this study. Particularly, we thank the probation officers who participated and the area managers who facilitated their participation.

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